

THE PROBLEM OF NONCOMPLIANCE IN HYPERTENSION*

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DIAGNOSING hypertension is usually quite easy. Recording the arterial pressure takes less than a minute; and treating most patients, at least those with mild disease, is actually quite simple, taking a pill a day. The problem is to keep asymptomatic patients under medical care and on medication. All the advances in therapy will not be realized—strokes, congestive heart failure, heart attacks, and renal failure will not be prevented—unless the patient takes his medication and remains under medical care.

Many factors are responsible for poor compliance: long waiting times in overcrowded areas, particularly in clinics, not only waiting for the physician but also standing in line at the pharmacy, poor follow-up, unnecessarily complicated treatment schedules, side effects of antihypertensive agents, and a poor or nonexistent doctor-patient relationship.

To gain an insight into the tremendous problem of patient noncompliance, a sociologist (E.C. Mattice) and I recently conducted a survey among patients who dropped out from hypertension clinics in an inner city. Early in the research we learned that patients dropped out not because they were uneducated, not because they didn't care about their health, and not because they could not afford the medication. These patients abandoned the clinic because they were treated like cattle, herded from one room to another, left waiting for hours, then examined by a different doctor on each visit. Their major complaints centered around two points: the amount of time they spent at the clinic and the lack of a medical relationship at the clinic.

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In our study, the average waiting time for the doctor's examination was 2.5 hours, and the average waiting time at the pharmacy after examination was another 1.8 hours. Because most of the patients used public transportation, travel time was one more frustrating element of the problem.

In contrast to the long waiting time before and after the examination, the average time spent with the physician was only 7.5 minutes. This was often not enough time for the patient to have his questions answered or to learn more about his disease, and obviously there was no opportunity to establish a good doctor-patient relationship. This unsatisfactory doctor-patient relationship was further weakened because typically the patient was examined by a different physician on each visit. To decrease the high dropout rates, our group reorganized the hypertension clinic with the patient's complaints as guidelines. We had three major objectives: to develop a real appointment system; to develop a personal relationship with the patient; and to provide convenient service for the patient. Instead of operating a Monday morning clinic with all patients coming in at 7:30 A.M. and the physicians arriving at 9:30 or 10:00 A.M., the patient got a definite appointment for 8:10 or 8:45 A.M. The day before the scheduled appointment, the patient would be called, and if the patient did not keep his appointment he was called and given another one.

Most important, every patient was assigned to his own paramedic whom he saw at every visit. The paramedics frequently came from the same block as the patient and therefore knew whom to call "honey" and whom to call "Mr. Jones". Each of the paramedics received on the job training and was chosen not so much because of her prior experience or education but because of her friendly and sympathetic personality and ability to identify with the patients.

The wait at the pharmacy was bypassed by having the nurse give the patient his medication. Precise instructions of how and when to take the medication and the possibility of side effects were discussed at this time. By placing emphasis on this one-to-one relationship and decreasing the time spent in the clinic from an average of 4 hours to 15 to 20 minutes, the dropout rate fell from 42% to under 4% in a matter of two years. Just as important was that 85% of the patients followed in this clinic for more than two years now have normal blood pressure.

Most physicians do not realize how significant their dropout problem really is—they do not know how many of their hypertensive patients do not come back. The dropout problem is not peculiar to the clinic. Practicing physicians frequently do not notice that a large number of their patients fail to return for follow-up. The cavalier attitude that many physicians take

regarding patients with mild and moderately severe hypertension is demonstrated by the recent studies by Schoenberger et al.,¹ which revealed that 55% of newly discovered hypertensive patients in the offices of cardiologists and internists were not even given a second appointment. The message found in the Veterans Administration and Public Health Studies,² i.e., control of arterial pressure significantly reduces morbidity and mortality, has obviously not reached many practicing physicians. Indeed, the Schoenberger study suggests that a smaller percentage of hypertensives are being treated today than several years ago.

Routine follow-up appointments at regular intervals should be given for all hypertensive patients, whether they are receiving medication or not. If a patient fails to keep his appointment, he should be contacted and a new appointment made. Good follow-up is absolutely essential.

Many studies have demonstrated that the simpler the treatment the more likely the patient will remain on therapy. The greatest compliance follows a one-pill-a-day regimen. In this regard, the good effect of a combination of thiazides and reserpine in the Veterans Administration studies should be emphasized. The addition of a third drug, hydralazine, resulted in only a 4 mm. further reduction in diastolic pressure. If such simple therapy produced these good results in men whose diastolic pressures were in the 114 to 129 mm. Hg range, it is logical to assume that this type of regimen would at least be as satisfactory in the many patients with less severe disease and that complicated regimens are rarely indicated at all. A recent study in an inner-city population where the eight-months dropout rate was only 3%³ has demonstrated that in 70% of newly discovered hypertensive patients the blood pressure was brought to normal by a combination tablet of reserpine and chlorthalidone: in other words, one pill a day.

We have found several other ways to help patients take their medication correctly. First, it is important to change the patients' way of life as little as possible, at least at the beginning. There is no doubt that patients would benefit from giving up smoking and losing weight, in addition to taking an antihypertensive agent, but they are more likely to take their medication if this is all they are asked to do. Convenient packaging of medication also enhances pill-taking. The oral contraceptive type of packaging can surely be used for once-a-day antihypertensive therapy. When more than one medication is prescribed, the use of one of the many commercially available containers with compartments for every day of the week provides the patient with a checklist that helps him take his daily quota. Taking the medication in association with a daily activity, i.e., once daily with

breakfast or twice daily with the morning and evening brushing of the teeth, reinforces the patient's medication schedule.

Finally, in this regard we all do better with at least some degree of supervision, particularly as far as taking medication is concerned. In my experience, patients are more likely to take their medication properly if the doctor or nurse shows a particular interest and specifically asks the patient whether he is taking his medication on schedule and whether the pills bother him in any way. The physician should also enlist the help of the spouse in this regard—as a matter of fact, the more the long-term management of the hypertensive patient can become a family affair, the better. Patients living alone obviously present a special problem, particularly young men and the elderly. Lastly, pharmacists can be extremely helpful in reminding patients to take their medication and to keep their appointments.

The actual writing of the prescription, warning of its possible side effects, and specifying the exact time of day that the patient should take the medication should be an integral part of the office visit. So often, the prescription seems to be an afterthought, hurriedly handed to the patient as he is going out the door, with the instructions, "Don't forget to take this." When there is more than one prescription, the patient frequently will buy only one since, "After all, it was not that important in the first place."

Failure to comply is also commonly due to drug-induced side effects, frequently from drugs the patient does not really need. Either the patient is too embarrassed to discuss the side effects, or he wants to please his physician by making a good report. In this regard it should be emphasized that the more potent the antihypertensive effect, the more frequent and obnoxious are the side effects. Patients with mild disease therefore should not be subjected to potent antihypertensive agents with the possibility of undesirable side effects. Indeed, the objectionable side effects may be worse than the actual disease. When patients have severe vascular disease with such complications as congestive heart failure or azotemia, side effects will be tolerated because the choice then is not between enjoying or not enjoying, but between living or dying. In patients with mild disease, however, who are truly asymptomatic, even minor side effects are frequently not tolerated.

It should be made clear at the outset that a variety of drugs are available and that if one regimen is troublesome, another can be substituted. The goal of therapy is not simply the lowest blood pressure that can be obtained, but *the lowest blood pressure with the fewest side effects*. In my experience, this goal can be accomplished in 85% of patients regardless of the severity of the disease. A frank discussion with the patient emphasizing the need for

mutual cooperation and free communication—that you are not only interested in lowering the blood pressure but also allowing him to enjoy a full life—will do much to start a meaningful relationship.

When a new drug is added to the regimen, it is important to initiate therapy with a suboptimal dosage. For instance, methyldopa and hydralazine should be initiated in doses of 250 mg. and 25 mg. respectively once a day. The dose of both these drugs can then gradually be increased over a two-week period to 100 mg. of methyldopa and 100 mg. of hydralazine, each given in divided doses. Instituting therapy with either of these agents in the usually recommended dosage will frequently be associated with obnoxious side effects. Unpleasant side effects during the first day of a new medication will “turn the patient off” from taking this drug forever and has the real possibility of making him refuse all antihypertensive therapy in the future.

It has been my experience, both in private practice and in the clinic, that patients (particularly those who are asymptomatic) will not remain under medical care and take their medication unless they are properly motivated. Such motivation can only result from a good doctor-patient relationship. Recent experience with an inner-city population has attested that a well-trained, understanding paramedical person may substitute for the physician in this relationship. Once this relationship has been established, time can then be spent in educating the patient rather than merely reassuring him. Education in the absence of such a relationship is worthless.

Establishing such a relationship obviously entails continuity of physician (or nurse-pharmacist) care, i.e., being followed by the same physician or nurse in the clinic or private office rather than the traditional clinic routine of a different physician each visit. In addition, it seems obvious that a sincere interest in the patient, in his blood pressure levels, specifically asking whether or not he is taking his medication, whether the medicine is bothering him in any way, whether he feels different in any way, emphasizing and reemphasizing specific instructions and asking the patient whether he fully understands, all go a long way toward developing a meaningful relationship. Simply taking the time to ask these questions frequently convinces the patient of our sincerity—that one really cares. How many times have we treated a private patient in an absolutely impersonal fashion as though he were a number in the grocery store? Clinic patients are frequently treated in this manner. How many times have we made ourselves unapproachable, preventing the patient from even thinking about asking a question, by constantly looking at the clock or into the waiting room to see how many patients are left?

Let's be honest with ourselves! Physicians are not interested in or really do not have time to follow apparently healthy patients, particularly patients that do not have any symptoms. Physicians are crisis-oriented, and are more interested in relief of pain and solving acute problems. The more specialized the physician's training, the less interested he is in asymptomatic, "dull" patients. The expertise of the cardiologist, as an example, has centered around the unravelling of complicated diagnostic problems or treating patients in emergency-crisis situations. The long-term routine care of hypertensive patients offers no challenge.

Just as specially educated nurses are relied on for expert patient care in coronary intensive care units, their value in the follow-up of hypertensive patients should be evident. Once a hypertensive patient has been initially evaluated and placed on a therapeutic regimen by a physician and has reached a status quo situation, he can ideally be followed by a nurse or health assistant working under the nurse. The nurse is challenged by this assignment and seeks to establish a meaningful relationship with the patient, which then allows her to motivate the patient to take medication and remain under care for the rest of his life.

With a trained nurse effectively directing the clinic in consultation with a physician and assisted by two paramedics, 30 to 40 patients can easily be seen per day. Doubling the paramedical personnel (ours are recruited from the community and trained by the clinic staff) can usually double the number of patients such a clinic can handle. Considering the roughly eight-to-one cost ratio of physician to paramedical personnel, this arrangement leads to substantial economic savings, and frees the physician to carry out other duties.

Heavy reliance on specially educated nurses has also been shown to be successful and practical in treating hypertensive subjects in industry. A recent project by Alderman⁴ dovetailed a screening and treatment facility at a large department store in New York City. From every aspect his operation was a success. At the end of the first year the blood pressure had been brought under control in 80% of the patients; 97% of the original patients were still under treatment and the cost per patient was less than \$100 per year. The union was so encouraged by the low cost, decreased disability, and time lost from work that they began to represent the program as a "membership benefit" and are currently supporting its expansion.

We are currently evaluating the role of a trained nurse in a private practice setting because medical care is predominantly delivered by private practitioners. A specially educated nurse is currently being placed in the of-

fices of a family practitioner in suburbia and a group of internists in Washington, D.C. Her responsibility will be the management of asymptomatic patients including regular and systematic assessment of the patients' status. On a pilot basis, the Blue Shield Organization has agreed to pay the patient's bill when treated by the nurse just as though he were treated by the physician. This organization will also evaluate the control of blood pressure, the number of dropouts, the patients' acceptance of the nurse and, most important, the impact of the nurse on the office efficiency and economy. With the nurse taking over the long-term management of hypertensive patients, the physician will have additional time to treat many more sick patients. It is hoped that at the end of a year data will demonstrate an increased incidence of hypertensive patients (because blood pressure recording will be carried out on every patient), an increase in the number of hypertensive patients under therapy, better control of the arterial pressure, and a decreased incidence of dropouts.

In addition to the nurse, it is my firm belief that recruiting the pharmacist to the doctor-nurse team will greatly enhance compliance. In no way am I suggesting that the pharmacist take the place of the nurse or the physician but, in conjunction with them, he can help educate the patient and keep him on medication and under medical care. The pharmacist is the most unused and probably unappreciated person in the health delivery system. His major expertise is in the use of drugs, their modes of action and interaction and precise dosage schedules. How many times is he called upon to utilize this expertise? He really is capable of doing more than simply operating a drug store.

If the pharmacist is going to be helpful to the physician in enhancing patient compliance, the physician must start the ball rolling by writing specific instructions on every prescription, not just "as directed". The pharmacist can then re-emphasize the number of pills, time of day, before or after eating, etc., which the physician may not have done. By keeping a current drug profile on every patient, the pharmacist might well find that the patient is taking another medication (i.e., for depression or a skin rash) that might decrease the effectiveness of or cause possible toxicity with the antihypertensive medication. Most patients usually go to the same pharmacy as a matter of convenience—at work or at home. Relating to the same pharmacist and having the pharmacist relate to the physician simply adds one more member to the health delivery team, all programmed to help the patient take his medication correctly and to stay under medical care for the rest of his life.

Although the attack on patient noncompliance may differ according to population and geographic area, several general principles apply to all: people very much respond to being treated humanely and with dignity, and the more the patient knows about his disease and its complications, the more readily he is going to comply. Although an efficient appointment system, providing services conveniently for the patient, keeping therapy simple, and keeping the cost of medication and laboratory tests at a minimum all enhance compliance, they are not substitutes for a meaningful physician-patient or nurse-patient relationship. An asymptomatic patient, educated or uneducated, black or white, is not going to stay on therapy and under medical care in a clinic or doctor's office unless he is positively motivated, and such motivation can only stem from a good relationship.

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